

### ABSTRACT OF THE DISCLOSURE

A loop test apparatus of a packet routing bus in a communication system and a loop test method thereof capable of testing entire functions of the packet routing bus of a full-duplex transmission mode and transmitting and receiving nodes by adding a loop test function to the packet routing bus. The loop test apparatus of a packet routing bus includes: a transmitting node and a receiving node, each including a transmitting driver and a receiving driver and each having a loop path for a data packet from the corresponding transmitting driver to the receiving driver; a transmitting bus master including a register for storing an address of one of the transmitting node and receiving node for managing a transfer of the data packet on a transmitting packet routing bus; a receiving bus master including a register for storing an address of one of the transmitting node and receiving node for managing a transfer of the data packet on a receiving packet routing bus; and a testing element for writing a test data packet to one of the transmitting node and the receiving node and writing the address of one of the transmitting node and the receiving node to transmit or receive the test data packet to or from the register of the corresponding bus master.